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cont.
a fixed shaft formed unitarily with the housing at a central portion of the housing and extending inwardly into the housing; a stator bonded to an upper end portion of an inner circumferential face of the circular hole; a lower ball bearing bonded to a lower side of an outer circumferential face of the fixed shaft, an upper ball bearing spaced by a certain interval from the lower ball bearing and bonded to an upper side of the outer circumferential face of the fixed shaft, and further comprising:

a cylindrical hub with both ends open, the cylindrical hub having an inner protruding portion protruding from a central portion of an inner circumferential face of the hub and an outer protruding portion protruding from an upper side of the outer circumferential face of the hub, the inner protruding portion being fixedly provided between the lower ball bearing and the upper ball bearing;

a permanent magnet bonded to a lower side of an outer circumferential face of the outer protruding portion of the hub;

a disk mounted on an upper face of the outer protruding portion of the hub; and
a clamp fixed to the upper side of the hub by a bolt to mount the disk to the hub,

wherein the cylindrical hub is configured to provide a gap between the shaft and the clamp.

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2. (Clean Copy) A disk-spindle motor having: a base plate having a circular hole at a central portion of the base plate; a housing fixedly positioned in the circular hole of the base plate; a fixed cylindrical shaft formed unitarily with the housing at a central portion of the housing, extending inwardly into the housing and having a jaw portion at a central portion of an outer circumferential face of the fixed shaft; a stator bonded to an upper end portion of an inner circumferential face of the circular hole of the base plate; a thrust pad vertically provided at the fixed shaft and mounted on the jaw portion of the fixed shaft, and further comprising:

a cylindrical hub with both ends open, the cylindrical hub having an outer protruding portion protruding from an upper side of an outer circumferential face of the hub and an inner protruding portion protruding from a lower side of an inner circumferential face of the hub, the cylindrical hub spaced by a certain interval from the thrust pad;

a permanent magnet bonded to a lower side of an outer circumferential face of the outer protruding portion of the hub;

a disk mounted on the outer protruding portion of the hub; and

a clamp fixed to the hub by a bolt to mount the disk to the hub,

wherein the cylindrical hub is configured to provide a gap between the shaft and the clamp.

Please enter the following claims for consideration:

C² --- 3. The disk-spindle motor according to claim 1, wherein the stator comprises a tooth-slot structured iron core and a winding wound around the iron core.

4. The disk-spindle motor according to claim 1, wherein the lower ball bearing is ring-shaped and composed of an inner race, an outer race and a plurality of balls.

5. The disk-spindle motor according to claim 1, wherein the upper ball bearing is ring-shaped and composed of an inner race, an outer race and a plurality of balls.

6. The disk-spindle motor according to claim 1, wherein the cylindrical hub is provided as a yoke which forms a closed path of a magnetic flux.

7. The disk-spindle motor according to claim 1, further comprising a cover fixed to the base plate and spaced apart by an interval from an upper side of the clamp.

8. The disk-spindle motor according to claim 2, wherein the stator comprises a tooth-slot structured iron core and a winding wound around the iron core.

9. The disk-spindle motor according to claim 2, wherein the thrust pad is ring-shaped.

10. The disk-spindle motor according to claim 2, wherein the cylindrical hub is provided as a yoke which forms a closed path of a magnetic flux.

11. The disk-spindle motor according to claim 1, further comprising a cover fixed to the base plate and spaced apart by an interval from an upper side of the clamp.---